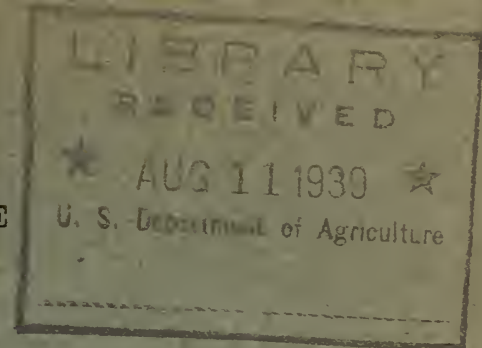


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UNITED STATES DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
Region Eight  
Albuquerque, New Mexico



Hugh G. Calkins  
Regional Conservator

INVENTORY OF MATERIAL ON THE RIO GRANDE WATERSHED  
(An Evaluation of Surveys and reports)

II

SECTION OF CONSERVATION ECONOMICS

Regional Bulletin No. 35  
Conservation Economics Series No. 8  
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HUMAN SURVEY OF THE RIO GRANDE  
WATERSHED





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I

A Generalized Statement of Method



When any agency or group of agencies undertakes a program of watershed conservation a series of complex problems arise. Any such program necessarily involves an adjustment of two sets of relationships--those among soil and water and plant life, and those between all of these relationships and human activity. A variety of disciplines are necessary in order to understand watershed relationships, disciplines which deal with every important aspect of soil and water, plant life, animal life and human life as these relate to the causes of destruction within a watershed. Numbered among these disciplines are agronomy, engineering, range management, soil science, forestry, and sociology.

Sociology is here to be understood in the broad sense which includes all of the social sciences in general and, in particular, the logically inseparable fields of economics, sociology, and ethnology.

The function of sociological investigation in watershed management is clear and specific. Since the principal causative factor in watershed destruction is the human use of that watershed, to the sociologist belongs the responsibility of describing and interpreting that use, and relating it to the total complex of factors which define the potentialities for conservation or for destruction of that watershed. From an understanding of the nature of a particular type of use and the specific conditions under which it exists, adjustments of human use to physical



conditions can be projected.

A sociological survey of the Rio Grande Watershed is under way. This survey, in terms of its procedures, is differentiated into three essential levels.

1) The first of these is the level of reconnaissance description. Description on this first level is designed to introduce a primary organization into undifferentiated, extensive material. Since from the point of view of human use of resources a watershed is not necessarily or even usually a homogeneous area, one of the major functions of this description is to mark out within the watershed areas which are relatively homogeneous in terms of human relationships to resources. Each of these areas is then subject to unitary analysis and to more precise description. Such descriptions have utility for closer definition of problems and for the determination of the most appropriate instruments of study.

2) The second level is the level of measurement, the measurement of human dependence upon resources. Study at this level is termed the "human dependency survey". This survey is not similar to the standard of living studies which aim at a single expression in terms of an average or a typical case of the magnitude and character of consumption of an entire group or society. The human dependency survey of the Rio Grande attempts (a) to measure dependency of people upon different resources, using the amount of livestock and agricultural land owned and the amount of income from





wage work as measures of dependency, (b) to describe dependency<sup>(1)</sup> in terms of the total range of variation by consumption groups which obtains, rather than in terms of averages.

3) The dependency survey does not provide basic material for the understanding of the nature of productive activity; it attempts only to measure the results of such activity. Interpretation of the results of measurement can evolve only from a clear understanding of all the interrelated activities directed toward the provision of livelihood. This understanding evolves neither from individual insight nor from a lifetime of experience. It emerges only from organized studies of the institutional activities of a people. These studies represent the third level of the survey--the level of interpretation.

Studies at these three levels of investigation and understanding constitute the sociological survey. Interpretative studies have been made in one section of the Rio Grande watershed. Studies, at this third level, of reaching economy and of irrigation agriculture have been projected. A dependency survey at the second level is nearing completion in one of the areas within the watershed.

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(1)

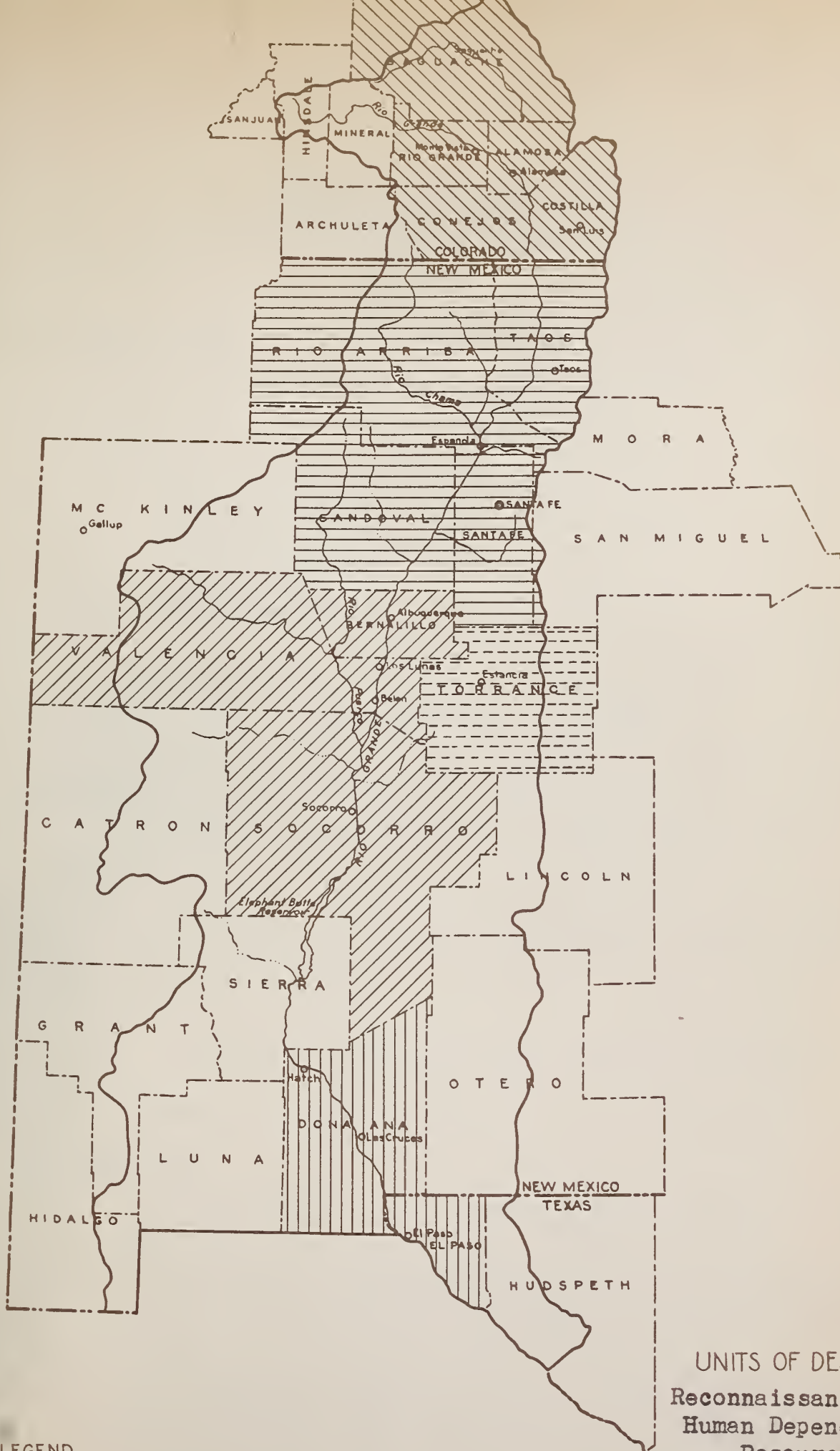
A consumption group is a group of individuals funding and sharing all income.




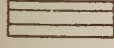
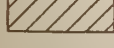
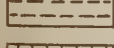

## II

Reconnaissance Survey of Human Dependency on  
Resources





LEGEND

-  San Luis Unit
-  Espanola Unit
-  Middle Rio Grande Unit
-  Estancia Unit
-  Mesilla Unit

UNITS OF DESCRIPTION  
Reconnaissance Survey of  
Human Dependency on  
Resources

UNITED STATES  
DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

RIO GRANDE WATERSHED

1937





RECONNAISSANCE SURVEY OF  
HUMAN DEPENDENCY ON RESOURCES IN  
THE RIO GRANDE WATERSHED

1. Area Covered. The Rio Grande watershed above Fort Quitman, Texas. Descriptions of the following sub-areas of the watershed:

San Luis Unit  
Espanola Unit  
Middle Rio Grande Unit  
Estancia Unit  
Mesilla Unit

These areas are delimited on the attached map.

2. Type of Data. Statistical and narrative.
3. Intensity. Each description constitutes a fairly exhaustive organization and compilation of existing data from a variety of sources. Descriptions refer primarily to the areas denoted on the map, and are generalized to cover physical areas not conforming to the county lines.

Intensity of detail varies by unit description according to amount and character of data available.

4. Sources.

San Luis Unit: Census reports; data available in offices of Resettlement Administration, Agricultural Extension Service, Colorado State Land Office, Office of the Colorado State Engineer, Colorado State College, Rio Grande Canal Co.

Espanola Unit: Human Dependency Survey material (SCS); census reports; field study of sharecropping with sheep;



field study of chili growing.

Middle Rio Grande Unit: Census reports; records of Middle Rio Grande Conservancy District; literature dealing with the history and development of the Conservancy District.

Estancia Unit: Census reports; data from interviews with the county extension agent, local storekeepers, local farmers.

Mesilla Unit: Census reports; data available in offices of U. S. Reclamation Service, Rio Grande Project; Elephant Butte Irrigation District; Production Credit Association; New Mexico State Agricultural College; County Extension Agents; Resettlement Administration; Relief and Security Administration; local cotton gins; local farmers.

5. Standards. Units, as indicated on attached map, were marked out roughly as areas of relative homogeneity in respect to land use, primarily on the basis of a general understanding of the characteristics of the economy, the physiographic features, and land status. This understanding was derived from general familiarity with secondary sources and from ocular observation.

Out of a mass of existing material in the form of schedules, reports, public documents and records, and through field trips and interviews with persons in key positions, an attempt was made to define the principal characteristics of the area. The dominant forces in the



development and functioning of the areas were identified and examined; to a large extent on the basis of solid evidence; to a certain extent, where little evidence was available, by the induction from partial evidence of relationships in the nature of hypotheses.

6. Use. Incorporated in report on Reconnaissance Survey of Rio Grande watershed.
7. Significance. Significant in identifying the major dynamic forces operating in these areas and in providing adequate general descriptions and definitions of the problems of the areas. On this basis focal points for more intensive study can be selected and the areas of extension of certain relationships can be delimited.



## III

Human Dependency Survey





## HUMAN DEPENDENCY SURVEY

1. Area Covered. This survey covers a substantial portion of the Jemez-Taos area, a portion of the Puerco Area and a small section of the Middle Rio Grande area as indicated on the accompanying map.
2. Type of Data. Statistical material collected in the form of a schedule. Narrative descriptions in the form of notes on each schedule. (Copies of the schedule and instructions appended).
3. Intensity. This survey attempts to measure the dependency of people upon resources, using the amount of livestock, the amount of agricultural land owned and used, and the amount of income from wage work as measures of dependency. Within the area indicated on the map, complete coverage of the population has been made.
4. Source. Interviews with individuals in the field. Records of governmental agencies for information on employment, relief, and the use of public resources.
5. Standard. Interviews conducted within the framework of a rigidly constructed schedule according to a set of instructions. The unit of interview an individual representing a consumption group, consumption group having been defined as "a group of individuals in habitual association, completely funding and sharing all income."



6. Use. This survey provided data for allocation of grazing on "Pueblo Purchase Areas" under the administration of the Soil Conservation Service; it provided data for the purposes of employing labor on Soil Conservation Service projects; it provided basic data for the planning of soil conservation in terms of adjusted land use.
7. Significance. With respect to the area of human dependency for which this survey was designed, this material represents a minimum of basic information required in public activity directed toward an adjustment of livelihood. Again in this area, this material provides a basis for making intensive sample studies on pertinent aspects of productive and consumptive activities of the people.



Instructions and Schedule  
For the Human Dependency Survey





INSTRUCTIONS  
FOR THE SCHEDULE USED IN THE  
HUMAN DEPENDENCY SURVEY OF THE RIO GRANDE  
WATERSHED

General Instructions

Place a check (X) before the names of the members of the consumption group giving the information.

If the information on any item on the schedule is "none", place a zero (0) or "none" in the appropriate place. If the information exists, but is not available, write the phrase "information not available" in the appropriate place; when necessary, add explanation on the reverse side of the schedule.

In all cases, particularly in the column "total amount earned", give the person being interviewed ample opportunity to give an answer. Do not press for or insist upon an answer if one is not forthcoming.

Let the interview assume the nature of a leisurely conversation. The interviewer should guide the conversation, but should never attempt to put the person interviewed "on the spot." The reasons for this are clear when the limitations of the schedule as a method of studying a social group are clearly understood.

Attempt, insofar as possible, to get information on the different categories in the schedule in the same manner for different consumption groups. Explain what you want as clearly as possible and in more or less the same way to the different groups.



In other words, attempt to standardize your stimuli, so that the reactions may be comparable.

1. For the purposes of this survey, the following working definition of a consumption group obtains:

A consumption group involves a group of individuals in habitual association completely funding and sharing incomes. Individuals temporarily absent from the group but ordinarily funding and sharing income should be included as a part of the consumption group.

It is recognized that cases may arise where there is complete funding and sharing of income within a group which lives and eats separately. In these cases the whole group should be listed as one consumption group with a notation as to separate domiciles. This should not be confused with two groups which fund and share a part of their income. For example, a group funding and sharing income from agriculture but not funding and sharing income from wages will be considered separate consumption groups.

2. It may not be possible to report exact ages and no effort should be made to do so. An error of several years in an individual's age will not be significant.
3. Nature of work refers to the kind of activity the individuals pursue for compensation. Under this column will be included all activities for which regularized compensation is given



(either cash or produce).

Although money or goods received for craft products may not correspond to the above definition, craft activity should be entered under "Nature of Work." If pensions are received or regular amounts of cash from an outside source, these also should be listed.

4. No. of days. This column will not apply for craft income.
5. Wage rate refers in all cases to a daily wage rate. In cases where the daily wage rate cannot be obtained, the most reliable wage rate available should be used. In the instance of craft production, no entries should be made. No entries should be made for pensions or regular cash received.
6. Total amount earned is used as a check against No. of days times wage rate. Make a notation if total amount earned does not approximate No. of days times daily wage rate as to comparative reliability of the two figures. This check will not be available for craft production, pensions, or regular amounts of cash received. In all instances the person being interviewed should be given an opportunity to give the "total amount earned" but in no instance should an answer be forced.
7. Under Livestock owned and operated should be listed the kind and amount of grazing animals owned by all members of the group without specific reference to individual ownership. Lambs, calves, colts, kids, born this season, should not be listed.





8. Livestock operated but not owned refers to the frequent occurrence of various types of sharecropping with sheep and cattle. Care should be exercised to distinguish between herding for pay and herding on shares. When the herder receives a wage for his labor, this should appear under the general heading of Wage Work under Column 4. When the operator herds sheep on shares, this should appear under Livestock operated but not owned.
9. Owner. Under this column should be listed the name of the individual owning the sheep which this consumption group operates.
10. Cultivable land is understood to mean all land cultivated during the present growing season or susceptible of being cultivated without additional treatment. All lands should be listed according to tracts. Specific ownership within the group need not be listed. Only tracts of irrigated or dry-farm land should be listed here. Grazing lands will be covered by Column 16.
11. Where and how long grazed. Care should be exercised so that the answer to this question will be particularly accurate. A map will be provided and the exact location of the range should be described by township and range or grant. The period of time the herd grazed on each area should be recorded. In the event that the herd comprises both sheep and cattle and they





are not ranged together, this question should be answered separately for sheep and cattle. If this herd is not grazed on the range, this also should be recorded.

Where and how long grazed refers to 1935. If, prior to 1935, the stock has been grazed elsewhere, a note to that effect should be added.

12. The classification owned and operated is used in this schedule to mean land owned and farmed exclusively by members of the consumption group during the present growing season. If one field is owned jointly by two consumption groups, ownership should be apportioned and the joint owners noted.
13. Land owned but idle is used to mean land owned and capable of being cultivated without additional treatment but not farmed by anyone during the present season.
14. Land used but not owned refers to land farmed by any member of the consumption group during the present growing season, but owned by someone not a member. In this column should be placed the acreage and kind of land used, the name of the owner, and the kind and amount of payment made for use. If no payment was made, this should also be noted.
15. In the column owned but used by others should be entered the kind and amount of land owned by any member of the consumption group but used by someone not a member. Under user and compensation, place the name of the person or persons using the



land and the kind and amount of compensation received by the consumption group. If no compensation was received, this also should be noted.

16. The column Grazing and Pasture Owned is designed to obtain information on ownership only. The question of use of grazing lands will be obtained under Column 11. Where homesteads are owned, these should be designated by township, range, section, and acreage. Where grants are owned, the name and acreage of the grant should be indicated. In most cases of grant ownership, a number of individuals will be involved. Where this is true, the number should be listed. Vega or pasture land should be listed by acreage. It should also be differentiated as to whether or not the land is fenced or unfenced.



CONSUMPTION GROUP (1)		WORK			LIVESTOCK			(9)	
Age (2)	Nature (3) of work	No. of days (4)	Wage Rate (5)	Total Amount Earned (6)	OWNED AND OPERATED (7)		OPERATED BUT NOT OWNED (8)	OWNER	
					KIND	#	KIND	#	
					HORSES		HORSES		
					RANGE CATTLE		RANGE CATTLE		
					MILK COWS		MILK COWS		
					SHEEP		SHEEP		
					GOATS		GOATS		
					BURROS		BURROS		
LIVESTOCK (Con)					CULTIVABLE LAND (10)				
WHERE AND HOW LONG GRAZED (11)					OWNED AND OPERATED (12)		OWNED BUT NOT OWNED (14)		OWNED BUT USED BY OTHERS (15)
					KIND	AC.	KIND	AC.	KIND
GRAZING & PASTURE OWNED (16)					AC.		OWNER AND PAYMENT		USER AND COMPENSATION











IV

Analytic Studies



1. THE PLACE OF CHILI IN THE ECONOMY OF THE TEWA BASIN
2. THE CUBA AREA
3. STUDY OF DELINQUENCY AND CHANGES IN LAND OWNERSHIP IN MIDDLE RIO GRANDE CONSERVANCY DISTRICT, 1936



THE PLACE OF CHILI IN THE ECONOMY  
OF THE TEWA BASIN

1. Area Covered. Santa Cruz Valley, Pojoaque Valley, and Lower Chama Valley.
2. Type of Data. Narrative and interpretive in the main. Occasional statistical data used.
3. Intensity. An attempt was made to study all aspects of the cash crop in a subsistence economy. In order to present this comprehensively a study was made of the production and marketing of chili, and the relationship of chili to all other productive activities of the agricultural population.
4. Sources. Merchants' statistics on marketing and price; interviews with the chili producing farmers and County Agent, Rio Arriba County.
5. Standard. It was proposed in this study to clarify and make more precise the characteristics of non-commercial agriculture. Since it was observed that an invariable characteristic of what has been called non-commercial agriculture was the production of a cash crop, the study was directed towards the determination of the economic needs of the non-commercial farming population and the appropriateness of the chili crop as a mechanism pointed toward the satisfaction of these needs. Special attention was paid to the consequences of this type of commercialism as it related to the security of the agricultural population.



6. Use. Preparation of a plan of rehabilitation for the Santa Cruz Valley.
7. Significance. Within limits this study provided a conceptual framework which clarified the problems involved in any manipulation of native economy.





## THE CUBA AREA

1. Area Covered. Eight hundred thousand acres in the Upper Puerco watershed ranging from township 15 N. to 23 N. and from range 1 W. to range 4 W.
2. Type of Data. Statistical and narrative or interpretive material.
3. Intensity. The total population and total use of all land by residents of the area has been considered. Supplementary information on wage work and relief has been added for each consumption group and can be correlated with that group's ownership and use of resources. Supplementary information has been obtained on the ownership and use of all adjacent areas of land.
4. Sources. Soil Conservation Service dependency survey, Forest Service permits, Division of Grazing applications, Navajo Service statistics on the Eastern Navajo Area, U. S. Senate Committee on Indian Affairs, interviews with selected samples of the agricultural population and interviews with local storekeepers.
5. Standard. This study is intended to illustrate the interdependence of agricultural and grazing use of lands. It is further anticipated that it will illustrate in terms of a human population and a physical resource the effects of 1) a scarcity of resources; 2) a discriminatory policy



on federally owned lands. The actual adjustments which have been made by the population to an insufficient share in the use of resources will be presented along with the various possibilities of land use adjustment which exist.

6. Use. Since this material is in the process of being organized it has as yet been put to no use. When it is presented it is hoped that it may serve as a case study in the possibilities of land use adjustment.
7. Significance. The principal shortcoming of this material is the absence of adequate physical surveys in the area. One possibility of land use adjustment, i.e., the development of supplementary resources within the area cannot be treated because of the absence of information as to the feasibility of such developments.



STUDY OF DELINQUENCY AND CHANGES IN LAND  
OWNERSHIP IN MIDDLE RIO GRANDE CONSERVANCY  
DISTRICT, 1936

1. Area Covered. Forty-five hundred acres in the vicinity of Los Lunas, Valencia County.
2. Type of Data. Statistical data.
3. Intensity. Sample covered about 5% of total agricultural land in Middle Rio Grande Conservancy District. Data obtained by separate tract of land on ownership (1928 and 1935) benefited acreage, appraised benefits, total assessment, bond levy delinquency, maintenance levy delinquency, class of land (irrigated and non-irrigated).
4. Source. Records of Middle Rio Grande Conservancy District, Head Office, Albuquerque.
5. Standard. Analysis of delinquency by size of tract, by size of holding, by ethnic grouping, and by type of land in an attempt to explain the present high delinquency in payment of Conservancy District assessments on the agricultural lands and to throw light on the changes in ownership that are to be expected from this high delinquency.
6. Use. Incorporated in Reconnaissance Survey of Middle Rio Grande Valley.
7. Significance. Sample too small to be conclusive.\*

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\* Sample is being enlarged to include 20% of entire agricultural area in Conservancy District. This will be a controlled sample according to size of holdings, amount of delinquency, and geographic distribution.





Indications are that the land at its present level of use (largely "non-commercial") is unable to carry Conservancy District charges; that changes to a commercial use involve radical changes in the techniques and practices of most of present farmers; that dispossession of Spanish-American owners is tending to increase. Significant in revealing the functions of the introduction of an irrigation district into a large "non-commercial" economy.

